



CIVIL GEOTECHNICAL SERVICES
ABN 26 474 013 724
PO Box 678 Croydon Vic 3136
Telephone: 9723 0744 Facsimile: 9723 0799

28 May 2023

Our Reference: 22563:PJF2841

Winslow Constructors Pty Ltd
50 Barry Road
CAMPBELLFIELD VIC 3061

Dear Sirs,

RE: LEVEL 1 EARTHWORKS INSPECTION AND TESTING
OFFICER FIELDS ESTATE, OFFICER – STAGE 4

Please find attached our Report Nos 22563/R001 to 22563/R008 that relate to the field density testing that was conducted within the filled areas of the above development. The inspection and testing duties, which were performed by experienced geotechnical engineers and geotechnicians from this office, were undertaken in accordance with the Level 1 guidelines presented in AS 3798 - Guidelines on earthworks for commercial and residential developments. The testing was performed to the relevant Australian Standards and the accompanying test reports carry NATA endorsement.

Initial site preparation works were undertaken during July and early August 2022. Prior to fill placement, the stripped surfaces were inspected to ensure that a stiff foundation free of organic matter and the like was achieved. Any soft spots and unstable areas and the like that were identified by proofrolling were removed down to a stiff base and replaced with suitably compacted materials.

The fill materials during the recent construction phase were initially spread by both a dozer and a grader and then compacted in nominal 0.25m thick loose lifts using a vibrating pad foot roller and a compacter. A truck mounted water cart was available to assist with moisture conditioning of the fill materials on an as required basis. Compaction testing of the fill materials was performed at regular intervals (both vertically and laterally) during fill placement to confirm that the method of fill placement was appropriate. Any areas that were deemed unsatisfactory were re-worked, removed or given extra rolling to ensure that the compaction criteria were met.

The purpose of performing Level 1 inspection and testing duties is to ensure the quality of the as constructed fill pad(s) and to both minimise the costs of extensive testing and eliminate any unnecessary time delays arising from the testing process. Hence, the provision of Level 1 duties allows the contractor to undertake the filling operation whilst the testing authority monitors the quality control process of the operation. As part of this latter process, the testing authority monitors the compaction methodology on a visual basis and undertakes a number of randomly placed spot checks (ie field density and associated compaction tests) to confirm that the adopted methodology is appropriate.

The attached compaction results, which were located randomly throughout the depth and breadth of the fill areas, are considered to be representative of the bulk fill materials that were placed within the development by Winslow Constructors Pty Ltd during the recent construction period. The locations of the actual field density test sites are shown on the relevant drawings.

We are of the view that the bulk fill materials that have been placed across the filled areas by Winslow Constructors Pty Ltd can be considered as having been placed in a controlled manner consistent with the Douglas Partner recommendations to a minimum density ratio of 95% (standard compactive effort). Accordingly, the fill materials would be deemed to comply with both the structural fill requirements of Clause 1.2.13 of AS 3798 and the controlled fill requirements of Clause 1.8.13 AS 2870 – Residential slabs and footings (2011).

In summary, we are satisfied that the fill materials have been placed and compacted in accordance with the requirements of the Level 1 criteria outlined in AS 3798. Accordingly, we are also of the opinion that the fill materials have been compacted in a controlled manner to a minimum density ratio of 95% (standard compactive effort). As such, re-classification of the filled allotments is permitted under Clause 2.5.3 (c) of AS 2870.

Please contact the undersigned if you require any additional information.

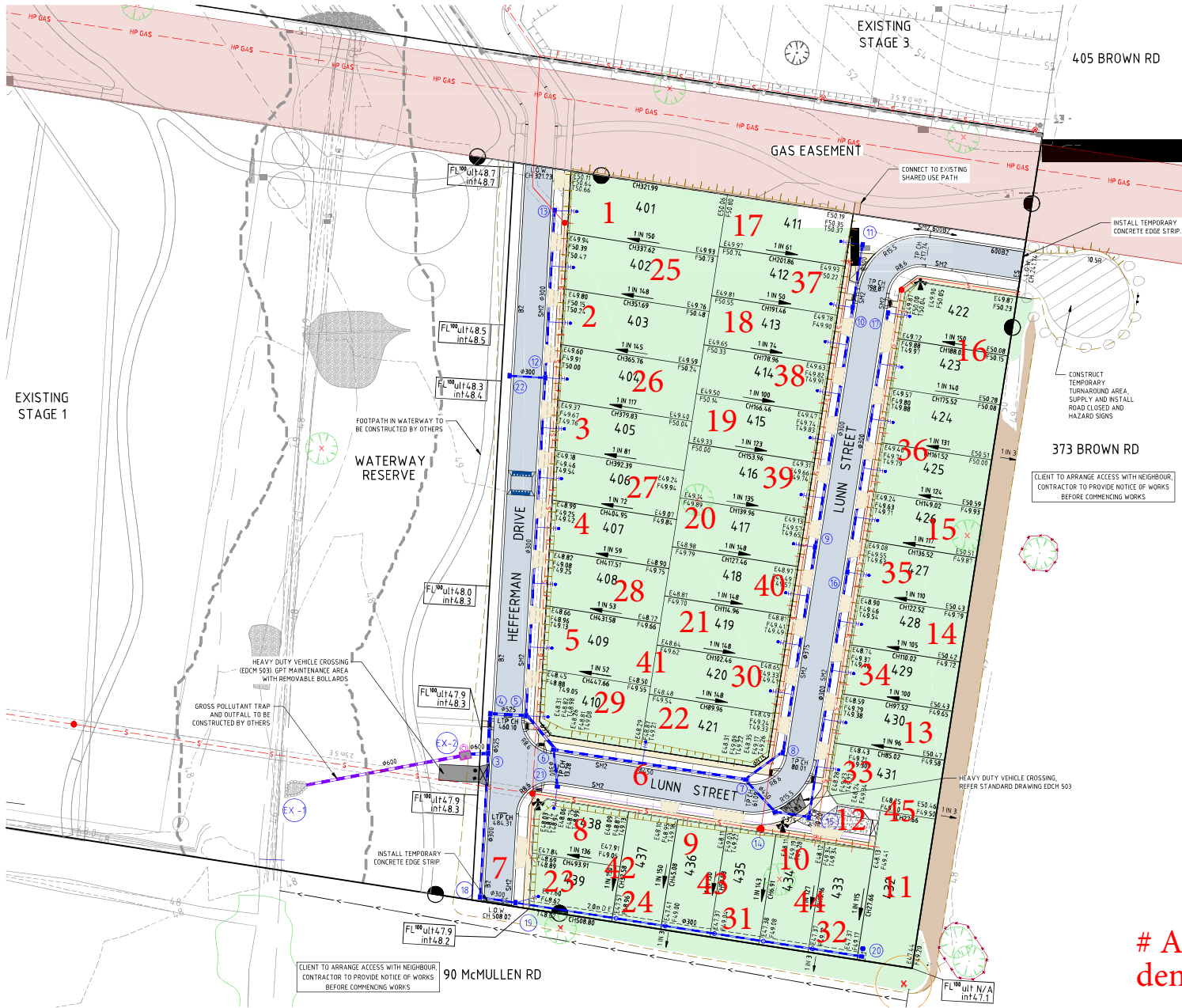
Yours faithfully,

Civil Geotechnical Services

A handwritten signature in black ink, appearing to be 'Peter Fry', with a long horizontal stroke extending to the right.

Peter Fry

FIGURE 1



!!! BEWARE !!!
 APA HIGH PRESSURE GAS TRANSMISSION LINE IN THE VICINITY OF THE WORKS. "NO GO" ZONE EXTENDS WITHIN THE APA GAS EASEMENT BOUNDARY. NO CONSTRUCTION OR ACCESS IS TO BE UNDERTAKEN WITHIN THE "NO GO" ZONE WITHOUT PRIOR APPROVAL FROM AN APA INFRASTRUCTURE PROTECTION OFFICER. APA MAY BE REQUIRED TO BE IN ATTENDANCE WHILE WORKS COMPLETED IN VICINITY OF APA INFRASTRUCTURE. APA OFFICERS CAN BE CONTACTED ON 1800 103 452 or APAProtection@apa.com.au

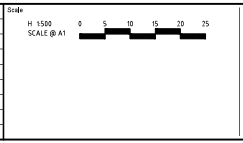


WARNING
 BEWARE OF UNDERGROUND/OVERHEAD SERVICES
 THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

Approximate field density test location

File Name: 308005CR201_01.dwg
 File Location: \\spire\projects\308005CR201_01.dwg
 File Date: 23/02/2022 14:41:00
 File Size: 10,017,022 B
 Plot Date: 23/02/2022 14:41:00
 Plot Size: 3.47 IT Sheets

Rev	Amendments	Approved	Date
B	UPDATED AS PER COUNCIL COMMENTS	BW	01/04/22
A	PRELIMINARY ISSUE	BW	23/02/22



System Certified
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Designed
 J.SIM
 Authorised
 B.WAREHAM

Checked
 B. MUGRIDGE
 Date
 23/02/2022

**OFFICER FIELDS
 STAGE 4
 ROAD AND DRAINAGE
 FACE PLAN**
 CARDINIA SHIRE COUNCIL
 YOURLAND PTY LTD

PRELIMINARY 308005CR201 B



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R001
 Date Issued 11/08/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	05/08/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	12:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	1	2	3	4	5	6
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	1.93	1.93	2.19	2.17	2.14
Field moisture content	%	20.3	18.9	14.1	18.0	16.7

Test procedure AS 1289.5.7.1

Test No	1	2	3	4	5	6
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	1.95	1.95	2.20	2.19	2.24
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	22.5	21.5	16.0	20.5	19.5

Moisture Variation From Optimum Moisture Content	2.5% dry	2.5% dry	1.5% dry	2.0% dry	2.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	99.0	99.0	99.0	99.0	95.5	98.0
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Material description

No 1 - 6 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R002
 Date Issued 22/10/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	26/09/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 10:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No		7	8	9	10	11	12
Location		REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m ³	2.06	2.07	2.03	2.07	2.04	2.04
Field moisture content	%	19.5	18.5	21.8	19.0	18.6	18.6

Test procedure AS 1289.5.7.1

Test No		7	8	9	10	11	12
Compactive effort		Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0	0
Peak Converted Wet Density	t/m ³	2.10	2.12	2.07	2.11	2.07	2.09
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	21.5	20.5	23.0	21.5	21.0	20.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	1.0% dry	2.0% dry	2.5% dry	1.5% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	98.5	97.5	98.0	98.0	98.5	98.0
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Material description

No 7 - 12 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R003
 Date Issued 23/11/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	27/09/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	13	14	15	16	17	18
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	2.02	2.01	2.00	2.00	2.00
Field moisture content	%	21.3	17.4	17.9	20.5	15.7

Test procedure AS 1289.5.7.1

Test No	13	14	15	16	17	18
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	2.06	2.05	2.04	2.06	2.07
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	23.5	19.5	19.5	22.5	18.0

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	1.5% dry	2.0% dry	2.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	98.0	98.5	98.0	97.0	96.5	96.0
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Material description

No 13 - 18 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R004
 Date Issued 22/10/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	28/09/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	09:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	19	20	21	22	23	24
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	1.99	1.98	1.97	2.05	2.06
Field moisture content	%	16.4	16.8	15.1	15.6	14.4

Test procedure AS 1289.5.7.1

Test No	19	20	21	22	23	24
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	2.04	2.01	2.00	2.09	2.11
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	18.5	19.0	16.0	17.5	16.5

Moisture Variation From Optimum Moisture Content	2.0% dry	2.0% dry	1.0% dry	2.0% dry	1.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	97.5	98.5	98.0	98.0	97.5	98.0
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Material description

No 19 - 24 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R005
 Date Issued 22/10/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	29/09/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	25	26	27	28	29	30
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth <i>mm</i>	175	175	175	175	175	175
Field wet density <i>t/m³</i>	1.97	1.97	1.89	1.88	2.05	2.03
Field moisture content <i>%</i>	17.1	15.7	18.5	21.9	19.3	19.3

Test procedure AS 1289.5.7.1

Test No	25	26	27	28	29	30
Compactive effort	Standard					
Oversize rock retained on sieve <i>mm</i>	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material <i>wet</i>	0	0	0	0	0	0
Peak Converted Wet Density <i>t/m³</i>	2.01	2.02	1.94	1.93	2.07	2.06
Adjusted Peak Converted Wet Density <i>t/m³</i>	-	-	-	-	-	-
Optimum Moisture Content <i>%</i>	17.5	17.5	19.5	24.0	21.0	21.5

Moisture Variation From Optimum Moisture Content	0.5% dry	2.0% dry	1.0% dry	2.0% dry	1.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R_{HD})	%	98.0	97.5	97.5	97.5	98.5	98.5
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Material description

No 25 - 30 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R006
 Date Issued 28/11/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	04/10/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time:	12:00
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No		31	32	33	34	35	36
Location		REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL							
Measurement depth	mm	175	175	175	175	175	175
Field wet density	t/m ³	2.01	1.96	2.01	1.96	2.01	2.02
Field moisture content	%	23.0	19.9	17.9	14.6	16.9	22.5

Test procedure AS 1289.5.7.1

Test No		31	32	33	34	35	36
Compactive effort		Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0	0
Peak Converted Wet Density	t/m ³	2.11	2.00	2.04	2.02	2.10	2.06
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-	-
Optimum Moisture Content	%	24.5	22.0	20.0	16.5	18.5	25.0

Moisture Variation From Optimum Moisture Content		1.5% dry	2.0% dry	2.0% dry	2.0% dry	1.5% dry	2.0% dry
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	95.5	98.0	98.5	97.0	96.0	98.0
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Material description

No 31 - 36 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R007
 Date Issued 28/11/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	05/11/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 13:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	37	38	39	40	41	42
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1
Approximate depth below FSL						
Measurement depth	mm	175	175	175	175	175
Field wet density	t/m ³	2.03	2.04	2.03	2.05	2.02
Field moisture content	%	18.1	18.9	20.6	20.9	21.0

Test procedure AS 1289.5.7.1

Test No	37	38	39	40	41	42
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	19.0	19.0
Percent of oversize material	wet	0	0	0	0	0
Peak Converted Wet Density	t/m ³	2.09	2.03	2.10	2.10	2.06
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	18.0	17.0	20.5	21.0	19.5

Moisture Variation From Optimum Moisture Content	0.0%	2.0% wet	0.0%	0.0%	1.5% wet	1.0% wet
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	97.5	100.5	97.0	97.5	98.0	100.0
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Material description

No 37 - 42 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry



COMPACTION ASSESSMENT

Job No 22563
 Report No 22563/R008
 Date Issued 28/11/2022

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Client	WINSLOW CONSTRUCTORS PTY LTD (CAMPBELLFIELD)	Tested by	SB
Project	OFFICER FIELDS - STAGE 4	Date tested	06/10/22
Location	OFFICER	Checked by	JHF

Feature	EARTHWORKS	Layer thickness	200 mm	Time: 12:30
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Test procedure AS 1289.2.1.1 & 5.8.1

Test No	43	44	45	-	-	-
Location	REFER TO FIGURE 1	REFER TO FIGURE 1	REFER TO FIGURE 1			
Approximate depth below FSL						
Measurement depth	mm	175	175	175	-	-
Field wet density	t/m ³	2.03	2.03	2.04	-	-
Field moisture content	%	18.3	19.7	19.4	-	-

Test procedure AS 1289.5.7.1

Test No	43	44	45	-	-	-
Compactive effort	Standard					
Oversize rock retained on sieve	mm	19.0	19.0	19.0	-	-
Percent of oversize material	wet	0	0	0	-	-
Peak Converted Wet Density	t/m ³	2.09	2.04	2.11	-	-
Adjusted Peak Converted Wet Density	t/m ³	-	-	-	-	-
Optimum Moisture Content	%	17.5	19.0	19.0	-	-

Moisture Variation From Optimum Moisture Content	0.5% wet	0.5% wet	0.5% wet	-	-	-
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density and moisture ratio results relate only to the soil to the depth of test and not to the full depth of the layer

Density Ratio (R _{HD})	%	97.5	99.5	97.0	-	-
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Material description

No 43 - 45 Clay Fill

AVRLOT HILF V1.10 MAR 13



NATA Accredited Laboratory No 9909
 Accredited for compliance with
 ISO/IEC 17025 - Testing

Approved Signatory : Justin Fry